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FIGURE 1

CCTTTCCTGCTGTAAGATTCAACATTTTAAATCAGTTAAATACTTTGTGCTCTCTGCTCTCCATCAGAAAGTAATACATAAGAA
 M H Y F G V L A A L S V F M I I A C L T R G K P L E N W K K 30
 ATGCATTATTTGGAGTATTAGCTGCACCTGCTGTTTCAATATCATTCCTGCTGACAAAGAGGCAAGCCTTTGGAAAACTGGAAAAAG
 L P V M E E S D A F F H D P G E V E H D T H F D F K S F L E 60
 CTACCAGTTATGGAGAGTCTGATGCTTTCATGATCCTGGGAGTGGAAACATGACACCCACTTTGACTTTAAATCTTTCTTGGAG
 N M K T D L L R S L N L S R V P S Q V K T K E E P P Q F M I 90
 AATATGAACACAGATTACTAAGAAGTCTGMAATTATCAAGGTCCCTCACAAGTGAAGACCAAGAGAGCCACACAGTTCATGATT
 D L Y N R Y T A D K S S I P A S N I V R S F S T E D V V S L 120
 GATTATACAACAGATATACAGCGGACAAGTCTCCATCCCTGCATCCCAACATCGTGAGGAGCTTCAGCAGCTGAAGATGTTGTTCTTTA
 I S P E E H S F Q K H I L L F N I S I P R Y E E V T R A E L 150
 ATTCACCAGNAGAACACTCATTTCAGAAACACATCTTGCTCTTCAACATCTCTATTCCACGATATGAGGAAGTCAACAGAGCTGAACCTG
 R I F I S C H K E V G S P S R L E G N M V I Y D V L D G D H 180
 AGAATCTTTATCTCCTGTCAAGGAAGTTGGGTCTCCCTCCAGACTGGAAGGCACATGGTCATTTATGATGTTCTAGATGGAGACCAT
 W E N K E S T K S L L V S H S I Q D C G W E M F E V S S A V 210
 TGGGAAACAAAGAAAGTACCAATCTTTACTTGCTCTCACAGTATTCAGGACTGTGGCTGGGAGATGTTGAGGTGTCCAGCGCTGTG
 K R W V K A D K M K T K N K L E V V I E S K D L S G F P C G 240
 AAAAGATGGGTCAAGGCAGACAGATGAAGACTAAACAAAGCTAGAGGTTGTTATAGAGAGTAAGGATCTGAGTGGTTTTCCTTGTGGG

FIGURE 1 (CONTINUED)

K L D I T V T H D T K N L P L L I V F S N D R S N G T K E T 270
 AAGCTGGATATTACTGTACTCATGACACTAAATCTGCCCTATTATAGTGTCTCCAATGATCGCAGCAATGGACAAAGAGACC
 K V E L R E M I V H E Q E S V L N K L G K N D S S E E E Q 300
 AAGTGGAGCTCCGGAGATGATTGTTCAAGACAAGAAAGTGTGCTAAACAATTAGGAAGAACGACTCTTCATCTGGAAGAAGACAG
 R E E K A I A R P R Q H S S R S K R S I G A N H C R R T S L 330
 AGAGAAAGAAAGCCATTGCTAGGCCCGCTCAGCATTCCTCCAGAAAGAGAGCATAGGAGCAAAACCACCTGTCCGAGAACGTCACCTC
 H V N F K E I G W D S W I I A P K D Y E A F E C K G G C F F 360
 CATGTGAACCTTTAAAGAAATAGTTGGGATTCTTGGATCATTCACCCCAAGATTATGAGGCTTTTGAGTGTAAAGGAGGTTCCTCTTC
 P L T D N V T P T K H A I V Q T L V H L Q N P K K A S K A C 390
 CCCCTCACAGATAATGTTACGCCCAACCAACATGCTATTGTCCAGACTCTGGTGATCTCCAAACCCCAAGAAAGCTTCCAAGGCCTGT
 C V P T K L D A I S I L Y K D D A G V P T L I Y N Y E G M K 420
 TGTGTTCCAACATAATTGGATGCAATCTCTATTCTTTATAAGGATGATGCTGGTGTGCCCACTTTTGATATATACTATGAAGGGATGAAA
 V A E C G C R 427
 GTGGCAGAATGTGGCTGCAGGTAGTATATGCTGAATATCTAAGAATATACTCTTTTCTGCTGTCTGTGAACTGTACATTAGTAGTGCAA
 ATGAAATCCTTGCAACAAAGGTTTGGAGCACGGCATGGGCTGTTGTTGTTGCTGCTTTTAAAGGAAAGATGGCATTAAAGAAATGGC
 AATCACTGTAAATACCCTGCATTATATACCATTAATTAACACTTTGTGAGATTGAAAAAATAAAAAA

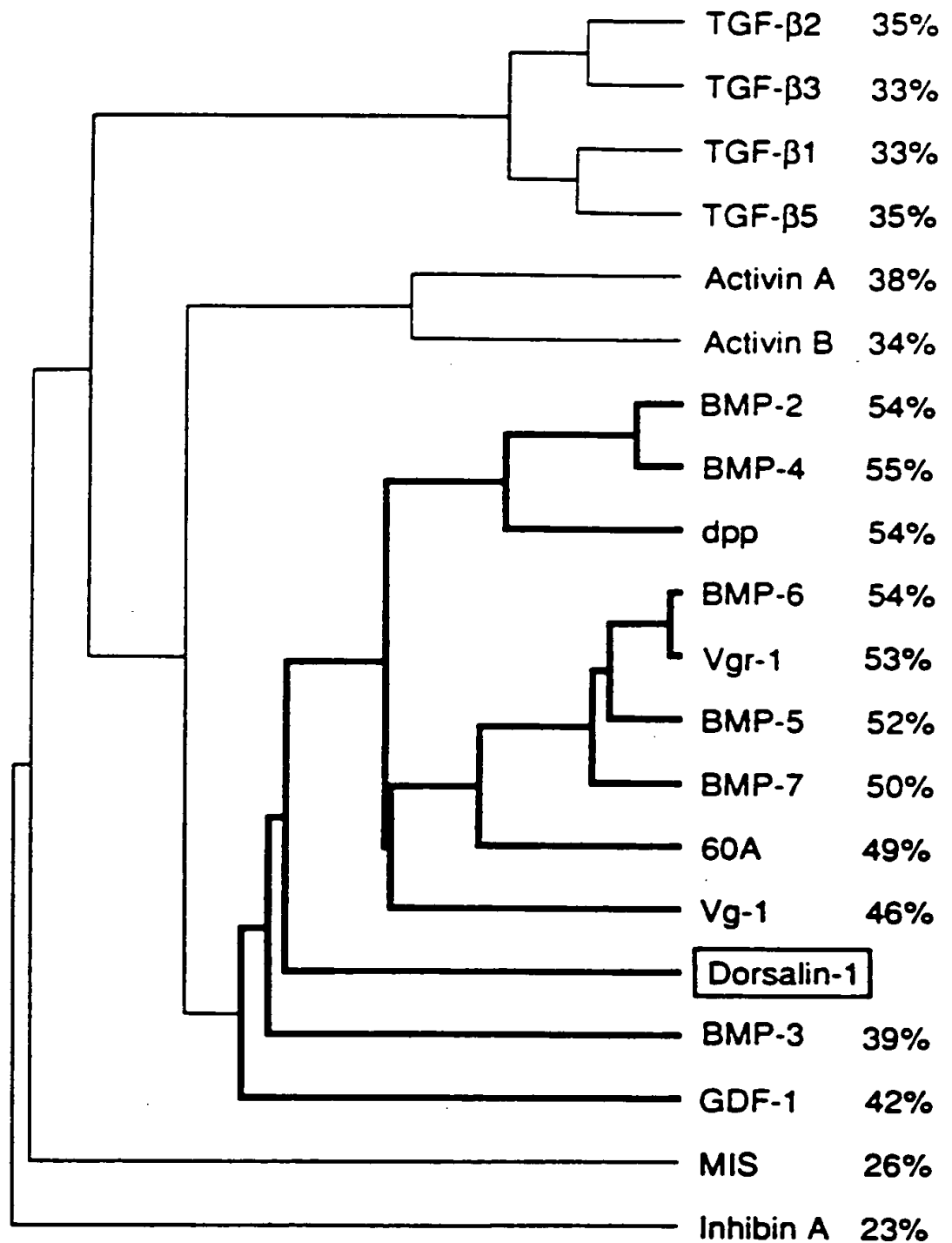
AATCACTGTAAATACCCTGCATTATATACCATTAATTAACACTTTGTGAGATTGAAAAAATAAAAAA

FIGURE 2A

DORSALIN-1	SVLNKLGKNDSSSEEEQREEKAIARPRQHSSRSKR^SIGANH	RRRTS	LHVNF	-KEIGMD	SWIIAPKDYEA	FECKGGCF
BMP-2	EHSWSQIRPLLVTFGHDGKGHPLHKREKQAKHKQRRLKSS	GKRRHP	LYVDF	-SDVGMND	WIIIVAPPGYHAFYCHGECF	
DPP	DDGRHKARSIR^DVSGGEGGGKGRNKRHARRPTRRKNHDDT	GKRRHS	LYVDF	-SDVGMND	WIIIVAPPGYHAFYCHGECF	
BMP-6	RTTR^SASSRRRQSSRNRSTQSDVARVSSASDYNSELKTAG	GRKHHE	LYVSF	-QDLGMND	WIIIVAPPGYHAFYCHGECF	
VG-1	ECKDIQTFLYTSLLTVTLNPLRCKRPRRKRSSSKLPFTASNI	GKRRHL	LYVEF	-KDVGMND	WIIIVAPPGYHAFYCHGECF	
ACTIVIN-A	GADDEEKEQSHRPFMLQARQSEDPHRRRRR^GLECDGKVNIG	GCKKQ	FFVSF	-KDI GMND	WIIIVAPPGYHAFYCHGECF	
TGF-BETA-1	GMMRPFLLLMATPLERAQHLQSSRRRR^ALDTNYCFSSTEKN	GCVRQ	LYIDF	ERKDL	GMK-WIHEPKGYHANFQ	LGPCP
DORSALIN-1	FPLTDNVPTPTKHAIIVQTLVHLQ	ISILYK	DDAGVPTL	IYNYEG	MKVA	EGGCR
BMP-2	EPLADHNLN	STNHAIIVQTLVNSV	ISILYK	DDAGVPTL	IYNYEG	MKVA
DPP	EPLADHFN	STNHAVVQTLVNMH	ISILYK	DDAGVPTL	IYNYEG	MKVA
BMP-6	EPLNAHNN	ATNHAIIVQTLVHL	ISILYK	DDAGVPTL	IYNYEG	MKVA
VG-1	YPLTEILN	GSNNHAIIVQTLVHSI	ISILYK	DDAGVPTL	IYNYEG	MKVA
ACTIVIN-A	SHIAGTSGSSLSFHSSTVINH	YRMARGHSPFANL	ISILYK	DDAGVPTL	IYNYEG	MKVA
TGF-BETA-1	-----YIWSLDTQYSKVLALY-NQH	NPGASAP	CCVPPQAL	EPLPIVY	-VGRKPKVE	-QLSNMIVRSCKQS

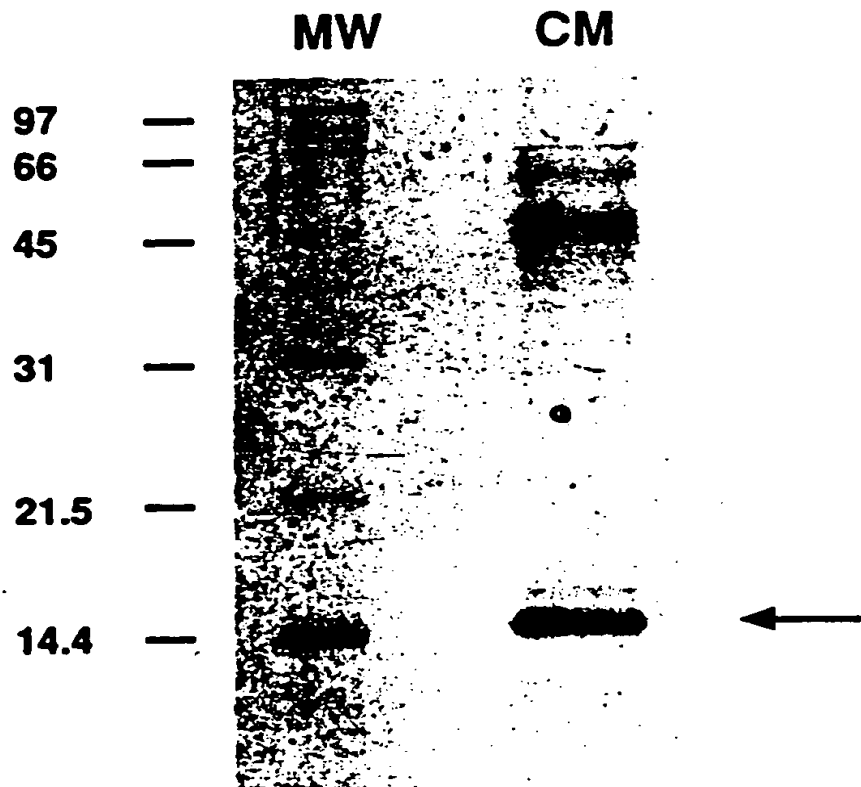
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[588]
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[390]

FIGURE 2B



5/16

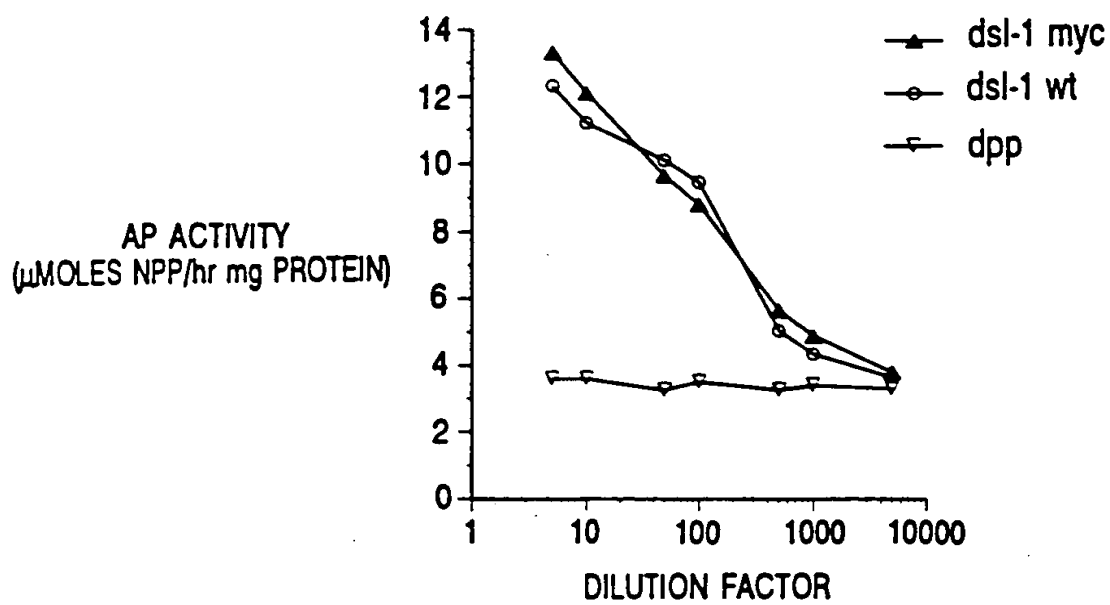
FIGURE 3A



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6/16

FIGURE 3B



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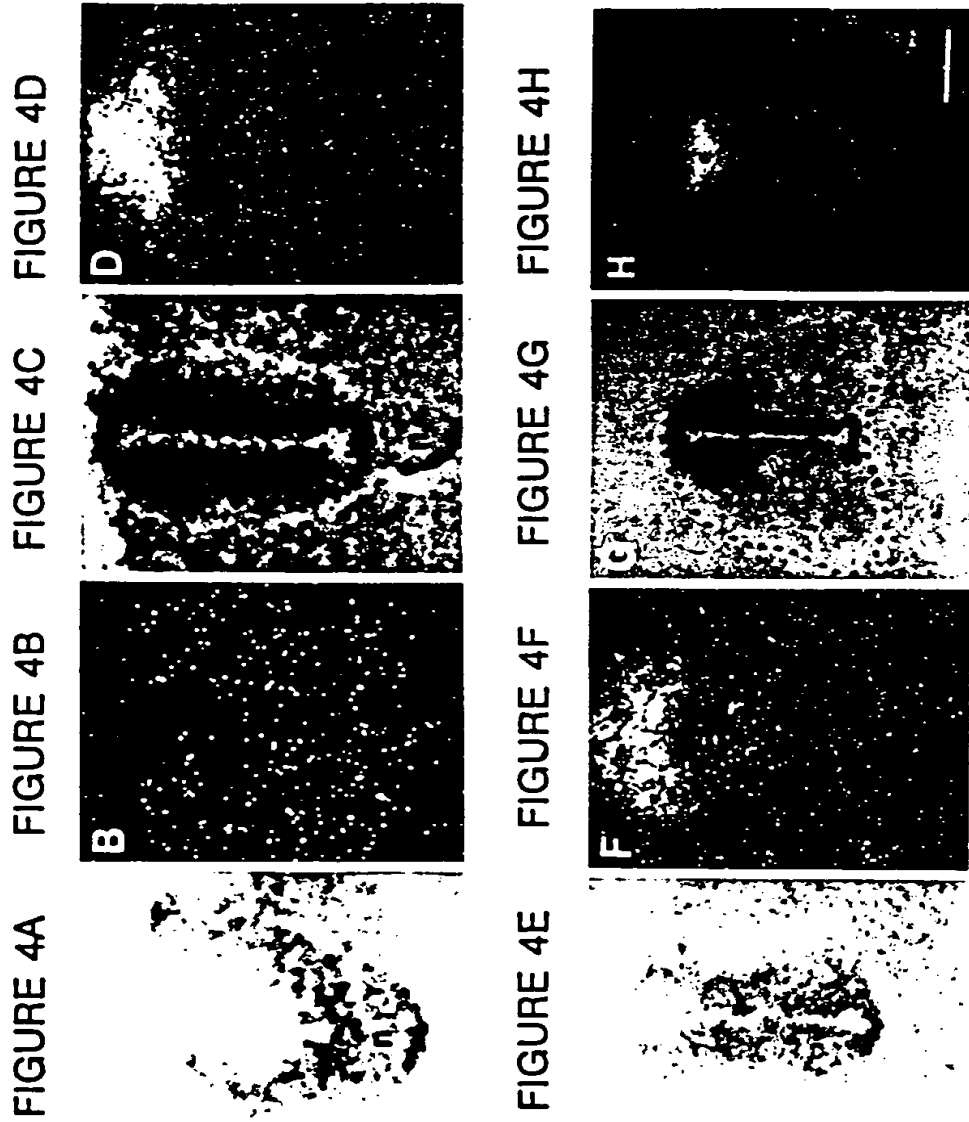


FIGURE 5A



FIGURE 5B

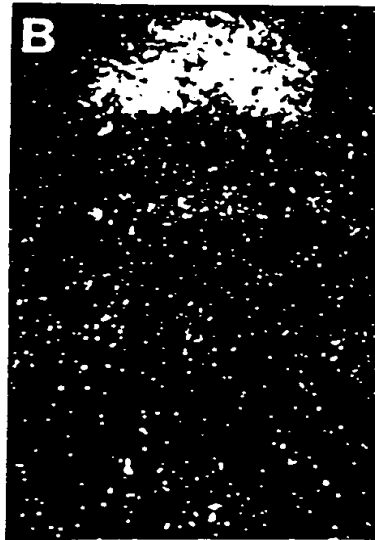


FIGURE 5C



FIGURE 5D



FIGURE 5E

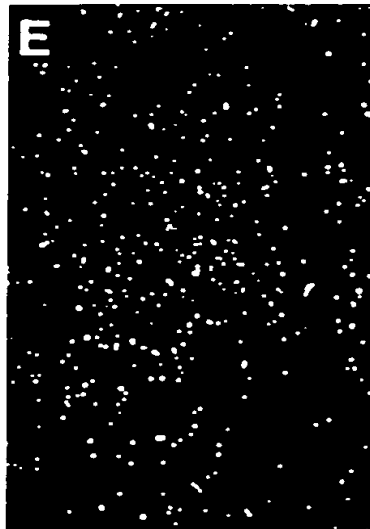
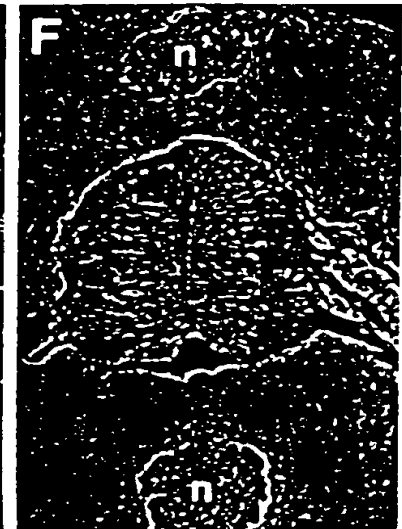


FIGURE 5F

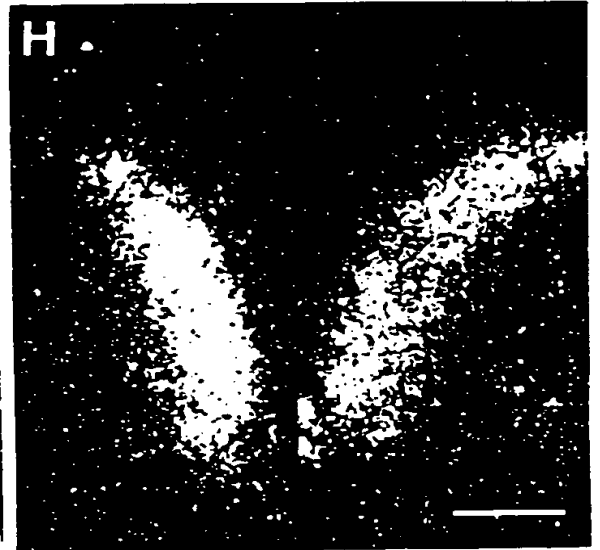


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FIGURE 5G



FIGURE 5H



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FIGURE 6A



FIGURE 6B



FIGURE 6C



FIGURE 6D

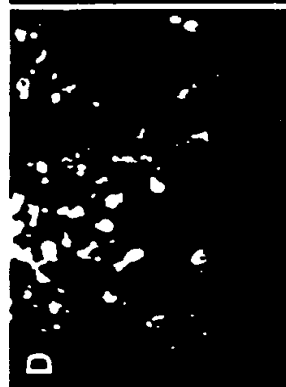


FIGURE 6E

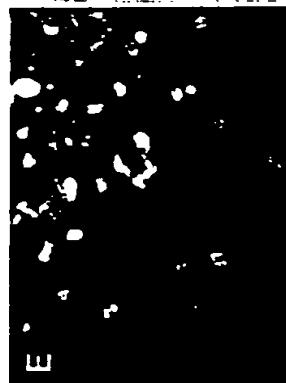
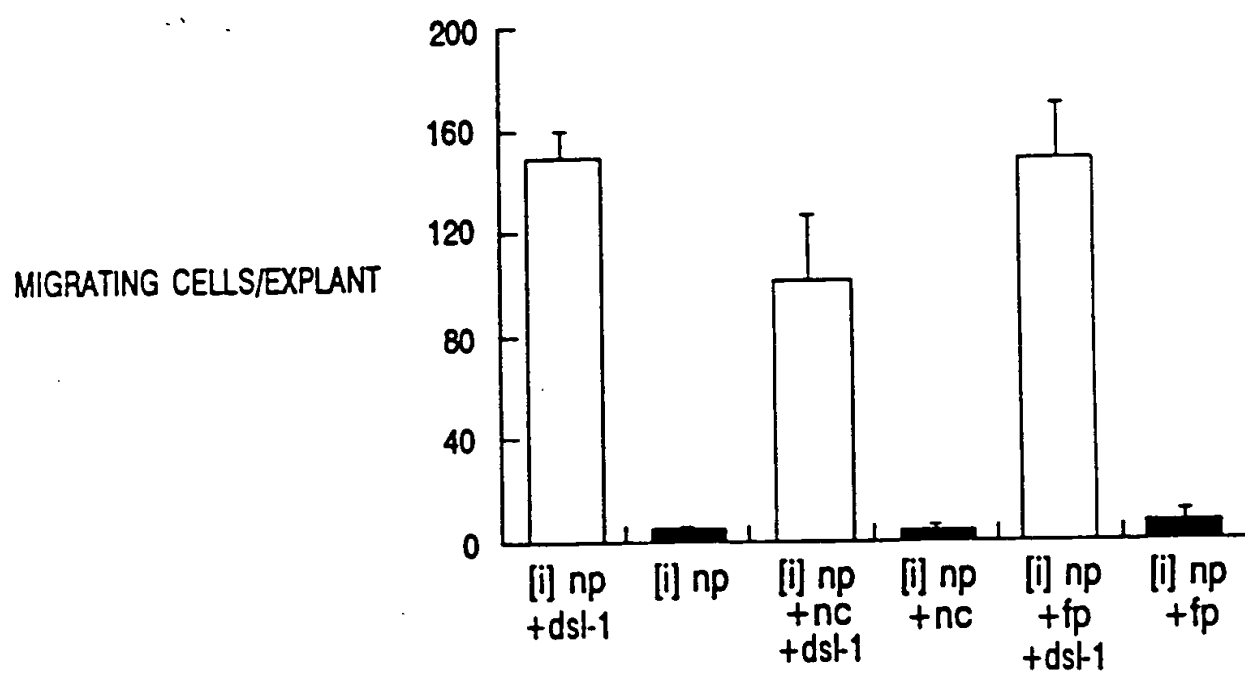


FIGURE 6F



11/16
FIGURE 6G



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FIGURE 7A FIGURE 7B FIGURE 7C

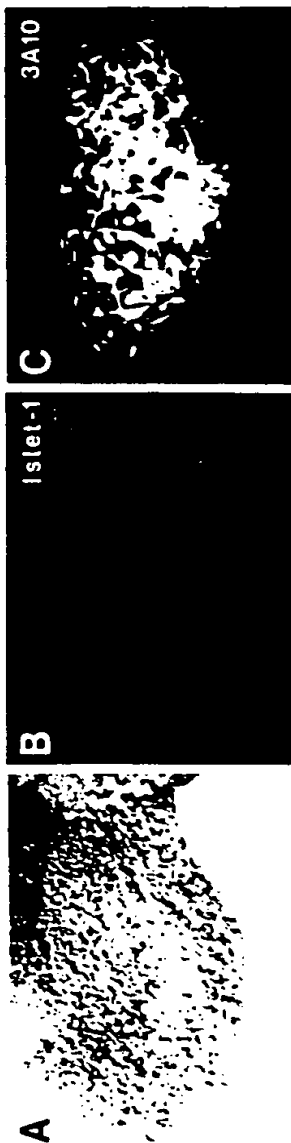


FIGURE 7D FIGURE 7E FIGURE 7F



FIGURE 7G



FIGURE 7H



FIGURE 7I



FIGURE 7J



FIGURE 7K



FIGURE 7L



14/16
FIGURE 8A

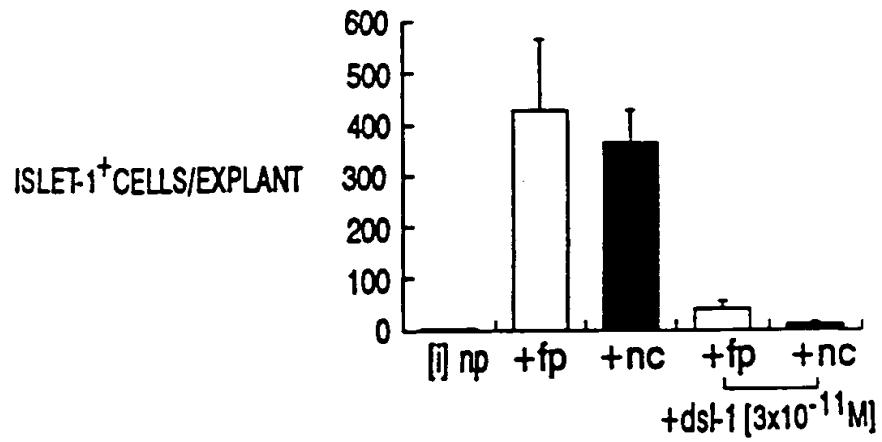


FIGURE 8B

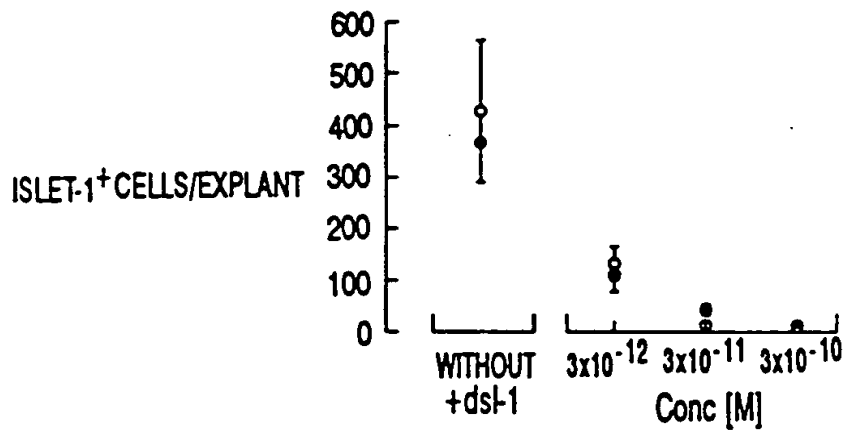


FIGURE 8C

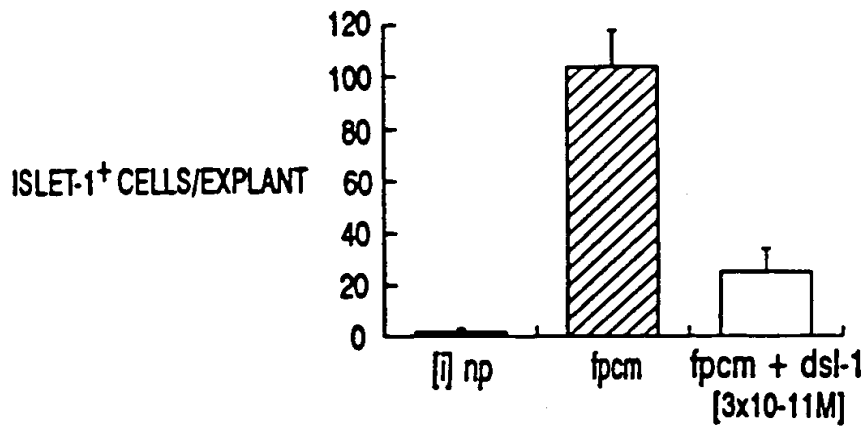
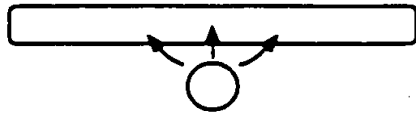


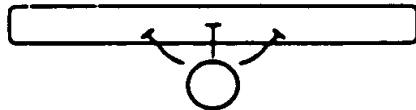
FIGURE 9A

A. ESTABLISHMENT OF *DORSALIN-1* EXPRESSION

- i) SIGNALS FROM THE NOTOCHORD SPECIFY THE VENTRAL FATE OF OVERLYING NEURAL PLATE CELLS



- ii) SIGNALS FROM THE NOTOCHORD ACT ON OVERLYING NEURAL PLATE CELLS TO PREVENT SUBSEQUENT *DSL-1* EXPRESSION



- iii) RESTRICTED DORSAL EXPRESSION OF *DSL-1* OCCURS AFTER NEURAL TUBE CLOSURE

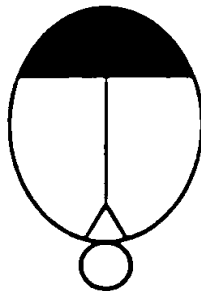
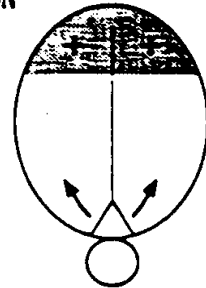


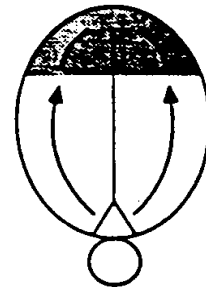
FIGURE 9B

B. POSSIBLE FUNCTIONS OF *DORSALIN-1*

- i) PROMOTION OF DORSAL CELL TYPE DIFFERENTIATION



- ii) LIMITING THE SPREAD OF VENTRAL SIGNALS



- iii) DIFFUSION OF *DSL-1* CONTROLS CELL PATTERN MORE VENTRALLY

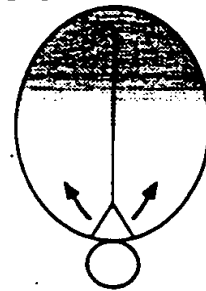


FIGURE 10

1 80
B29 MHYFGVLAALSVEFNIIACLTGRGPLENWKKLPMVEESDAFFHDPGEVEHDTHEDFKSFLENMKTDLRLSLNLSRVP SQVK
B29m
81 160
B29 TKEPPQFMIDLNYRYTADKSSIPASNIVRSFSTEDVVSLISPEEHSFQKHILLFNISIPRYEEVTRAEIRIFISCHKEV
B29m
161 240
B29 GSPSRLEGNMVIYDVL.DGDHVENKESTKSLVSHSIQDCGWEMFEVSSAVKRWVKADKMKTKNKLEVVIESKDLSGFPC
B29mDVLEDSETNDQATGTTKTLVVSQDIRDEGWETLEVSSAVKRWVRADSTTNKNKLEVTVQSHRES...C
241 320
B29 GKLDITVTHDTKNLPLLI VFSNDRSNGTKETKVE.LREMIVHEQESVLNKLGNDSSEEEQREEKAI...ARPRQHSSR
B29m DTLDISVPPGSKNLPFFV VFSNDRSNGTKETRLDLLKEMIGHEQETHLVKTAKNAYQGAGESQEEEGLDGYTAVGPLLAR
321 400
B29 SKRSIGA.NHCRRTSLHVNFEKEIGWDSWIIAPKDYEA FECKGCGFFPLTDNVTPTKHAIVQTLVHLQNP KKAKACCVPT
B29m RKRSTGASSHCQKTSLRVN FEDIGWDSWIIAPKEYDAYECKGCGFFPLADDVTPTKHAIVQTLVHLKFPTKV GKACCVPT
401 433
B29 KLD AISILYKDDAGVPTLIYNYEGHKVAECGCR
B29m KLSPISILYKDDMGVPTLKYHYEGMSVAECGCR